MULTIMEDIA UNIVERSITY

STUDENT ID NO

MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2017/2018

TQA7011 – SOFTWARE QUALITY ASSURANCE AND TESTING

(All sections / Groups)

5th FEBRUARY 2018
8.00pm-10.00pm
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This Question paper consists of 4 pages (including cover page) with 4 Questions only.
2. Attempt **ALL** questions. All questions carry equal marks and the distribution of the marks for each question is given.
3. Please print all your answers in the Answer Booklet provided.

Question 1

(a) A programmer makes a mistake which causes a defect that may be seen as a failure during dynamic testing. Please provide an example of scenario which illustrates the stated chain of events. (3 marks)

(b) In non-functional testing, the quality characteristic of the component or system is tested. Explain usability testing using your own example. (2 marks)

(c) Static analysis is used for analysis of software artefacts without execution of these software development artifacts. List down FOUR examples of defects discovered by static analysis tools. (2 marks)

(d) Pesticide paradox is one of the testing principles which is to be overcome. Explain the meaning of this principle and suggest TWO ways to overcome it. (3 marks)

Question 2

(a) What is maintenance testing? Provide a trigger for performing maintenance testing. (2 marks)

(b) You are working on a project that has poor specifications and time pressure. Suggest a test technique which would be the most useful approach to use. Justify your answer. (3 marks)

(c) Order numbers on an ecommerce inventory system can range between 1000 and 9999 inclusive. You, as the tester, need to design tests for only VALID equivalence classes and VALID boundaries. Write down the inputs as a result of your designed test. (3 marks)

Continued...

(d) You are testing a system that scores exam papers and assigns grades. Based on the score achieved, the grades are as follows:

1-49=F, 50-59=D, 60-69=C, 70-79=B, 80-89=B+, 90-100=A

If you apply boundary value analysis, how many test cases will you need to achieve minimum test coverage? List down all the test cases needed. (2 marks)

Question 3

(a) Given the following code, what is the minimum test required for statement coverage? List down the test(s) required. (2 marks)

```
Discount = 0
Orderquantity = 0
Read Orderquantity
If Orderquantity >=30 then
Discount = 0.07
If Orderquantity >=100
then Discount =0.2
End if
End if
```

(b) Given the following program, show the calculation of McCabe's Cyclomatic Complexity. (2 marks)

```
IF X < Y THEN Statement 1;
ELSE IF Y >= Z
THEN Statement 2;
END
```

Continued...

(c) Given the following code, what is the minimum number of test cases required for full statement and branch coverage? List down the test case (s) required. (4 marks)

```
Read p
Read q
IF p+q > 100 THEN
Print "Large"
ENDIF
IF p > 50 THEN
Print "p Large"
ENDIF
```

(d) If you are testing a module of code, how do you determine the level of decision coverage you have achieved? (2 marks)

Question 4

(a) List THREE potential benefits and THREE potential risks of using tools to support testing. (3 marks)

(b) Define project risk and product risk in software testing. (2 marks)

(c) Explain the main contributions of templates to software quality assurance. (2 marks)

(d) Describe THREE principles embodied in the Capability Maturity Model Integration (CMMI). (3 marks)

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